

IN THE CLAIMS:

1. (Currently Amended) A breathing circuit ~~conduit~~ component or connector for interconnection with a breathing assistance apparatus and having an interior defining a longitudinal axis for conveying respiratory gas, said breathing circuit component or connector capable of receiving an associated sensor, said breathing circuit component or connector comprising:

a sensor entry port extending perpendicularly from said ~~conduit~~ component or connector and configured to receive ~~a~~ the sensor, said sensor entry port being defined by a wall, and

a locating notch ~~provided in a wall of said sensor entry port~~ extending from said wall, said locating notch configured to receive a complementary locating tooth from ~~a~~ the sensor, the interconnection of said notch and a tooth providing a predetermined orientation of ~~a~~ the sensor which is fixed relative to the longitudinal axis ~~within said interior~~.

2. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 1 further comprising a sensor for locating within said sensor entry port, said sensor including

sensor housing adapted for positioning in said gas flow, said sensor housing having a longitudinal axis substantially perpendicular to said gas flow and a sensing end,

a locating tooth configured to mate with said notch, and

at least one projecting tab, extending laterally from said sensor housing, said at least one projecting tab providing surfaces which enable liquid condensate to disperse away from said sensing end of said sensor housing.

5 3. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 wherein said sensor comprises two projecting tabs.

4. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 or claim 3 wherein said two projecting tabs are oppositely positioned around said sensor
10 housing.

5. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 or claim 3 wherein each said projecting tab is aligned parallel to said gas flow.

15 6. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 or claim 3 wherein liquid condensate is dispersed along lines of intersection between said sensor housing and each said tab, there existing a localised area of low surface tension along said lines of intersection.

20 7. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 or claim 3 wherein said sensor comprises a temperature sensor housing and a flow rate sensor housing.

8. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 7 wherein said temperature sensor housing and said flow rate sensor housing each comprise a temperature dependent resistance.

5 9. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 8 wherein temperature dependent resistance is occasionally heated to a predetermined difference temperature above the temperature of said gas flow, and the power required to maintain said predetermined difference temperature providing an indication of the flow rate of said gas.

10 10. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 7 wherein said flow rate sensor housing is exposed at or near the sensing end while said temperature sensor housing is encapsulated at or near the sensing end of the temperature sensor housing.

15 11. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 9 wherein said temperature and flow rate sensor housing are spaced across said gas flow in order that heat produced from said flow rate sensor housing has substantially minimal effect on said temperature sensor housing.

20 12. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 11 wherein said flow rate sensor housing is positioned downstream of said temperature

sensor housing in order that heat produced by said flow rate sensor housing does not affect said temperature sensor housing.

13. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 2 or claim 3 wherein said gas flow is channeled within a conduit of known cross-sectional area, at least in the region adjacent said sensor, and is provided with said sensor entry port adapted to receive said sensor, the positioning of said temperature and flow rate sensor housing relative to said gas flow being controlled by the interconnection of said locating notch and tooth.

14. (Currently Amended) A breathing circuit ~~conduit~~ component or connector capable of receiving an associated sensor and having an interior defining a longitudinal axis for conveying respiratory gas, said breathing circuit component or connector comprising:

a gas inlet communicating with said interior and configured to connect to an outlet of humidifier or other breathing assistance apparatus,

a gas outlet communicating with said interior and configured to connect to a conduit,

a sensor entry port configured to receive ~~a~~ the sensor, said sensor entry port being defined by a wall, and

a locating notch extending from said wall, said locating notch configured to receive a complementary locating tooth from ~~a~~ the sensor, the interconnection of said notch and a tooth providing a predetermined orientation of ~~a~~ the sensor which is fixed relative to the longitudinal axis within said interior.

15. (Currently Amended) A breathing circuit component or connector as claimed in claim 14 wherein said sensor entry port comprises an annular cylinder extending perpendicularly from said ~~conduit~~ component or connector and having a passage communicating with and extending from said interior, said passage being substantially perpendicular to said interior.

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16. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 15 wherein said locating notch is at an end of said cylinder distant said interior.

10 17. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 16 wherein said notch is substantially “V” shaped.

18. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 17 wherein a base of said “V” shaped notch is rounded.

15 19. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 18 wherein a diameter of said passage ensures a substantially airtight seal against a the sensor located therein.

20 20. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 19 wherein said inlet includes an exterior surface comprising a tapered male portion configured to connect to a tapered female portion of an inner surface of an outlet of humidifier, or other breathing assistance apparatus.

21. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 20 wherein said gas outlet includes an inner surface configured to form a substantially airtight seal against an exterior surface of a conduit.

22. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 21 wherein said inner surface of said gas outlet and the exterior surface of the conduit are permanently bonded.

23. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 22 further comprising a flow sensor having a substantially cylindrical exterior configured to form an airtight seal against said passage, a sensing end and a locating tooth configured to mate with said locating notch and locate said sensing end ~~in predetermined location or orientation~~ within said interior.

24. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 23 wherein said tooth is substantially “V” shaped.

25. (Currently Amended) A breathing circuit ~~conduit~~ component or connector as claimed in claim 24 wherein a base of said “V” shaped tooth is rounded.

26. (New) A breathing circuit component or connector as claimed in claim 1, further comprising a sensor mounted within said sensor entry port.

27. (New) A breathing circuit component or connector as claimed in claim 14, further comprising a sensor mounted within said sensor entry port.

5 28. (New) A breathing circuit component or connector for interconnection with a breathing assistance apparatus and having an interior for conveying respiratory gas, said breathing circuit component or connector capable of receiving an associated sensor, said breathing circuit component or connector comprising:

10 a sensor entry port extending perpendicularly from said component or connector and configured to receive the sensor, said sensor entry port being defined by a wall, and

a locating notch extending from said wall, said locating notch configured to receive a complementary locating tooth from the sensor, the interconnection of said notch and a tooth preventing rotational movement of the sensor within said sensor entry port.

15 29. (New) A breathing circuit component or connector as claimed in claim 28, further comprising a sensor mounted within said sensor entry port.